

CLAIMS:

What is claimed is:

1. An integrated circuit testing apparatus that provides thermal control of a device under test, comprising:
 - a coldplate, the coldplate including tooling balls formed on the coldplate;
 - a load frame positioned beneath the coldplate, the load frame including locator features;
 - wherein the locator features engage the tooling balls such that rotation of the coldplate is restricted about a first axis of rotation, but is permitted about second and third axes of rotation, and such that transverse motion of the coldplate with respect to the load frame is restricted.
2. The apparatus of claim 1, wherein the tooling balls are cylindrical with semi-spherical ends.
3. The apparatus of claim 1, wherein the tooling balls are formed on load flanges of the coldplate.
4. The apparatus of claim 1, wherein the coldplate includes features for mounting, aligning, and suspending the coldplate, and features for accommodating cartridge heaters, thermocouples, and gas flow; and wherein the coldplate and features are of unibody design.

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5. The apparatus of claim 1, further comprising side frames for supporting a nest structure that includes the coldplate, wherein the sideframes are pinned to a clamp plate such that the side frames can be separated from the clamp plate and reassembled while maintaining positional tolerances.

6. The apparatus of claim 1, further comprising a pogo pin socket having probe pins and supported by corner pins, the corner pins supported by springs; wherein a load placed on the socket compresses the corner pins and the probe pins of the socket.

7. An integrated circuit testing apparatus that provides thermal control of a device under test, comprising:

a nest assembly that includes a coldplate, the coldplate being supplied with chilled fluid by fluid lines for cooling the device under test;

wherein first ends of the fluid lines connect to supply chilled fluid to and remove chilled fluid from the coldplate, and wherein second ends of the fluid lines connect to an adjustable clamp; and

wherein the fluid lines exert a force on the coldplate, and wherein the force exerted by the fluid lines cancels other forces exerted on the cold plate such that a net force between the coldplate and the device under test is substantially resolved at a vector center of the device under test.

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8. The apparatus of claim 7, wherein the coldplate includes features for mounting, aligning, and suspending the coldplate, and features for accommodating cartridge heaters, thermocouples, and gas flow; and wherein the coldplate and features are of unibody design.

9. The apparatus of claim 7, further comprising side frames for supporting a nest structure that includes the coldplate, wherein the sideframes are pinned to a clamp plate such that the side frames can be separated from the clamp plate and reassembled while maintaining positional tolerances.

10. The apparatus of claim 7, further comprising a pogo pin socket having probe pins and supported by corner pins, the corner pins supported by springs; wherein a load placed on the socket compresses the corner pins and the probe pins of the socket.

11. The apparatus of claim 7, wherein the adjustable clamp attaches to a bracket on a card cage bulkhead.

12. The apparatus of claim 7, wherein the coldplate includes tooling balls formed thereon, and wherein the tooling balls fit into alignment structures of a load frame to restrict movement of the coldplate about an axis substantially perpendicular to the plane of the coldplate and such that transverse motion of the coldplate with respect to the load frame is restricted.

13. A method of testing an integrated circuit, comprising the steps of:

supplying a coldplate of a testing apparatus with chilled fluid, wherein the coldplate includes structures protruding from the coldplate;

positioning the coldplate adjacent to a load frame, the load frame having receptacles positioned to engage the structures protruding from the coldplate;

aligning the coldplate with a device under test;

wherein when the coldplate is positioned adjacent to the load frame, the structures engage the receptacles such that the coldplate is free to rotate about an axis perpendicular to the coldplate, but allowed to rotate about two axes parallel with the coldplate, and such that transverse motion of the coldplate with respect to the load frame is restricted.

14. The method of claim 13, wherein the structures are semispherical tooling balls fitted into load flanges of the coldplate.

15. The method of claim 13, wherein the structures are cylinders with semispherical ends.

16. The method of claim 13, wherein the coldplate includes features for mounting, aligning, and suspending the coldplate, and features for accommodating cartridge heaters, thermocouples, and gas flow; and wherein the coldplate and features are of unibody design.

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17. The method of claim 13, further comprising side frames for supporting a nest structure that includes the coldplate, wherein the sideframes are pinned to a clamp plate such that the side frames can be separated from the clamp plate and reassembled while maintaining positional tolerances.

18. The method of claim 13, further comprising a pogo pin socket having probe pins and supported by corner pins, the corner pins supported by springs; wherein a load placed on the socket compresses the corner pins and the probe pins of the socket.